



Pasture Associated Laminitis in the Fall

Although laminitis has many causes, nearly half of the cases in the U.S. are associated with grazing pastures during certain times of the year when nonstructural carbohydrate (NSC) content is high. While we typically worry about grazing lush pastures in the spring months, horse owners should be aware that grazing pastures in the fall may also increase their horse's risk for developing laminitis.

What is Laminitis?

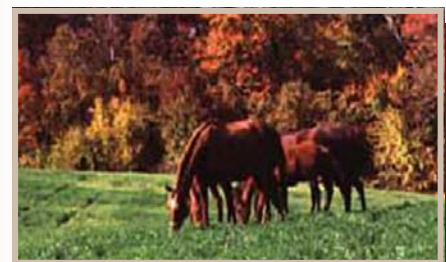
Laminitis is a systemic disease that often results in inflammation of the *laminae* (tissue that connects the coffin bone to the hoof wall). The laminae of the hoof separate during laminitis and can lead to *founder* (downward rotation of the coffin bone away from the hoof wall). Laminitis usually affects the front feet and the degree of lameness depends on the stage of the disease. Not all horses that have laminitis will develop founder. Laminitis is caused by digestive and metabolic disorders in horses associated with high intakes of NSC. Intake of forages with high NSC content may result in rapid fermentation in the hindgut leading to a cascade of events culminating in laminitis. Intakes of forages with high NSC content can also lead to insulin resistance, which is a predisposing condition for laminitis.

What are Forage NSC?

Nonstructural carbohydrates (NSC) include simple sugars, starches and fructans. During photosynthesis plants produce simple sugars. When sugars are produced in excess of the energy requirement of the plant for growth and development, they are converted into storage carbohydrates (fructan and starch). There are differences in NSC content among plant species. Cool season grasses like Tall Fescue are typically higher in NSC than warm season grasses and legumes.

Fluctuation in Pasture NSC

Pasture NSC content fluctuates throughout the day and over the seasons. Environmental variables, such as intensity of sunlight, temperature, and rainfall all affect forage NSC levels. NSC levels tend to be highest in the spring and fall months because environmental conditions favor plant growth. Studies at Virginia Tech (McIntosh et al, 2007) found that NSC tends to rise during the morning hours, reaches maximum levels in the afternoon and declines overnight. Forage NSC content can also become elevated when plants are stressed (ex. drought or frost).



Grazing autumn pastures may increase the risk for laminitis.

Grazing Management Strategies

Horses and ponies predisposed to laminitis should be restricted from grazing when environmental conditions favor high NSC concentrations. If removal from pasture is not an option, grazing muzzles can be used. It is best to allow animals at risk for laminitis to graze during the overnight hours and early in the morning when NSC are likely to be lower. Forages (pasture and hay) should be tested for NSC content if risk for laminitis is a concern. Contact your County Extension Agent or Dr. Bridgett McIntosh for more information on forage testing.

Questions or comments? Contact Dr. Bridgett McIntosh, UT Extension Equine Specialist

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